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Case Report

Acute appendicitis with superior mesenteric vein septic thrombophlebitis

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Abstract

Septic thrombophlebitis of the superior mesenteric vein (SMV) is rarely caused by acute appendicitis. The clinical symptoms of SMV thrombophlebitis are varied and atypical, so the diagnosis is commonly delayed, resulting in a reported mortality rate of 30%–50%. We report a case of SMV septic thrombophlebitis caused by acute appendicitis in which the patient was successfully treated with surgical intervention, appropriate antibiotics, and anticoagulation therapy. A follow-up abdominal computed tomography scan after 3 months of treatment showed that the SMV thrombosis had been resolved.

Keywords: acute appendicitis; septic thrombophlebitis; superior mesenteric vein

1. Introduction

Septic thrombophlebitis of the superior mesenteric vein (SMV) is rarely caused by intra-abdominal infectious disease, such as acute cholecystitis, acute pancreatitis, and acute appendicitis. Before 1950, the incidence of acute appendicitis complicated with septic thrombophlebitis of the portomesenteric veins was 0.4%.[1] With the development of broad-spectrum antibiotics, early diagnosis and early surgical treatment of intraperitoneal septic conditions have made the incidence of septic thrombophlebitis of the SMV very low. Due to the symptoms being nonspecific, the diagnosis of septic thrombophlebitis of the SMV is generally delayed, and the mortality rate is very high. We describe a patient with thrombophlebitis of the SMV, which was caused by acute appendicitis with rupture, and who was well treated in our institution.

2. Case report

A Taiwanese man 45 years of age who was previously healthy presented with right lower abdominal pain with nausea and vomiting for 4 days. He did not care about it at first, but then, due to increasing pain and development of a high fever, he called at our emergency department (ED) for help. On arrival at the ED, his temperature was 38.7 °C, pulse rate was 126/minute, respiratory rate was 24/minute, and blood pressure was 86/61 mmHg. A physical examination found local tenderness and rebound tenderness over the right lower abdominal region. There was no epigastric tenderness or rebound tenderness. Laboratory data showed leukocytosis (white blood cell count: 22,800/mm^3), hyperbilirubinemia (3.9 mg/dL total bilirubin, 1.7 mg/dL direct bilirubin) and coagulopathy (prothrombin time: 15.4/11.5 second, patient/control; international normalized ratio: 1.7). Abdominal computed tomography (CT) scan demonstrated a loculated abscess collection with air fluid levels and fecalith in the retrocecal area and thrombosis in the main trunk and right side colic branch of the SMV (Fig. 1A and B). Complicated appendicitis with SMV thrombophlebitis was impressed. Then, percutaneous sonoguided tube drainage of the abscess

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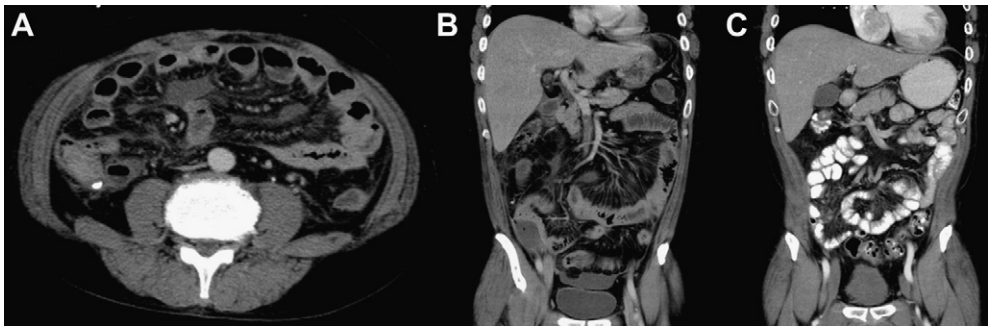

Fig. 1. (A) CT of the abdomen showed loculated abscess collection with air fluid levels and fecalith in the retrocecal area; (B) thrombosis in the main trunk of the SMV; (C) follow-up CT 3 months later showed resolution of the SMV thrombosis. CT = computed tomography; SMV = superior mesenteric vein.

over the right lower abdomen was performed by a radiologist. Approximately 50 ml of turbid fluid was initially drained. The patient was then sent to our intensive care unit (ICU), where broad-spectrum antibiotics (carbapenems 1.0 gm qd) and an anticoagulant (heparin continuous drip with pump at rate of 800 U per hour) were prescribed. Nutrition was provided by parenteral nutrition, and the patient was given nothing orally. After the patient had been in the ICU for 1 week, he developed persistent fever and leukocytosis despite broad-spectrum antibiotics and abscess drainage. We performed an appendectomy, and the fever subsequently subsided and the leukocytosis improved. Retrocecal appendix severe swelling and congestion with base perforation, abscess formation, and severe adhesion were found during operation. The patient then started to receive oral intake. A blood culture yielded unidentified anaerobic gram-positive bacilli. After a 2-week duration of heparin therapy, we shifted from heparin to warfarin and continued therapy for 2 months. The patient was discharged on the Day 22 without complications. A follow-up abdominal CT scan (Fig. 1C) after 3 months of treatment showed that the SMV thrombosis was in complete remission. There was no fever, epigastric pain, elevated bilirubin, coagulopathy, or any symptoms or signs of SMV thrombophlebitis during the outpatient department follow-up.

3. Discussion

SMV thrombophlebitis is an uncommon complication of infectious diseases of the portal venous system. Other infectious diseases of the portal drainage area such as acute cholecystitis, acute diverticulitis, and acute appendicitis rarely result in SMV thrombophlebitis. [2−4] Before 1950, about 0.4% of acute appendicitis cases were complicated with SMV thrombophlebitis, and the complication has become very rare because of adequate antibiotic treatment and surgical intervention in recent decades.[1] The clinical symptoms of SMV thrombophlebitis vary and are atypical, so the diagnosis is commonly delayed, resulting in a reported mortality rate of SMV thrombophlebitis of 30%−50%.[4,5] The patient may present with nonspecific symptom such as chills, an elevation in body temperature, and general weakness. In our case, the patient had right lower abdominal pain for 4 days and intermittent fever for 2 days. The SMV thrombophlebitis was due to delayed management of acute appendicitis. The serum examination may reveal liver function test elevation, leukocytosis, jaundice, and coagulopathy, but results are usually nonspecific.[1,5,6] Abdominal CT scans are more reliable than ultrasonography, and they can also identify the infection source.[6−8] After definite diagnosis, the major treatment options, including surgical removal of the infection source, appropriate antibiotics, and anticoagulation therapy. Although the role of anticoagulation therapy in the management of thrombophlebitis is still controversial,[5,9,10] most reported cases have used heparin followed by warfarin. Some clinicians used low-molecular-weight heparin for anticoagulant therapy.[11] There is no evidence to support underlying hypercoagulability association with acute appendicitis-induced SMV thrombosis. A standard duration of anticoagulation therapy is unclear, but most cases in the literature have used continuous treatment for 2 months. In our case, we prescribed heparin for 2 weeks and then shifted to warfarin for total treatment duration of 2 months. Surgical intervention was delayed due to some cases being successfully treated with interval appendectomy.[12] In summary, septic thrombophlebitis is rarely found as a complication of acute appendicitis. Due to uncommon and nonspecific symptoms, it is often missed in diagnosis and has a high mortality rate. If SMV thrombophlebitis is clinically suspected, an immediate CT scan can make the diagnosis. If SMV thrombophlebitis is likely, surgical removal of the infection source and antibiotic therapy should be done immediately. However, the role of anticoagulation therapy is unclear.

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